

Patent claims

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1. An article comprising a substrate which is coated at least partly with at least one layer, and on which there is at least partly a protein-, peptide- and/or saccharide-containing substance, where the layer directly adjacent to the substance comprises at least one metal selected from titanium, zirconium and hafnium, or a compound thereof with one or more nonmetals and/or semiconductors, or an alloy thereof with one or more other metals, and has been applied by means of a vacuum coating process.
2. An article as claimed in claim 1, wherein the metal is titanium.
- 15 3. An article as claimed in claim 1 or 2, wherein the layer comprises compounds of at least one metal selected from titanium, zirconium and hafnium with at least one element selected from nitrogen, oxygen and carbon, where the compounds have the formula $MC_xN_yO_z$, where M = Ti, Zr and/or Hf; x, y, z = 0.0 to 2.1; and $x+y+z = 0.01$ to 4.
- 20 4. An article as claimed in any of claims 1 to 3, wherein the layer has been applied by PVD, PECVD or CVD.
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- 25 5. An article as claimed in any of the preceding claims, wherein the thickness of the layer is between 0 and 5 μm .
6. An article as claimed in any of the preceding claims, wherein the specific resistance of the layer is between 10 and $10^7 \mu\Omega cm$.
- 30 7. An article as claimed in any of the preceding claims, wherein the layer which is directly adjacent to the substance and has been applied by the vacuum coating process has undergone an aging in air.
- 35 8. An article as claimed in any of the preceding claims, wherein the at least one substance is selected from albumin, fibrinogen and heparin.

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9. An article as claimed in any of the preceding claims, wherein the substance comprises at least albumin.

10. An article as claimed in any of the preceding claims, wherein the substrate consists of stainless steel, tantalum, Nitinol, titanium, gold, and/or polymer.

11. An article as claimed in any of the preceding claims, which is designed as a stent.

12. A process for producing an article as claimed in any of the preceding claims, wherein a substrate is at least partly coated with at least one layer, and subsequently a protein-, peptide- and/or saccharide-containing substance is applied at least partly to the coated substrate, where the layer directly adjacent to the substance is applied using at least one metal selected from titanium, zirconium and hafnium, or a compound thereof with one or more nonmetals and/or semiconductors, or an alloy thereof with one or more other metals at a temperature of from 20 to 500°C under vacuum.

13. A process as claimed in claim 12, wherein the substance is applied by introducing the coated substrate into a solution containing the substance.

14. A process as claimed in claim 13, wherein the solution contains from 0.5 to 40% by weight of the substance, based on 100% by weight of solution.

15. A process as claimed in any of claims 12 to 14, wherein the substrate is coated under a pressure of from 10^{-5} to 10^{-2} mbar.

16. A process as claimed in any of claims 12 to 15, wherein the substrate, the layer and the substance are as defined in any of claims 2 to 10.

17. The use of an article as claimed in any of claims 1 to 11 for implantation, insertion or attachment in or on the animal or human body or for bringing into contact with human or animal blood or tissue or human or animal cells.

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18. The use of a protein-, peptide- and/or saccharide-containing substance for application to a layer, which comprises at least one metal selected from titanium, zirconium and hafnium, or a compound thereof
5 with one or more nonmetal and/or semiconductors, or an alloy thereof with one or more other metals, and has been applied by a vacuum coating process.

19. The use as claimed in claim 17, wherein a substance as defined in claim 8 or 9 is used.

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